BRUHAT BANGALORE MAHANAGARA PALIKE

Name Of Work	**Improvements to Roads, Drains and Footpath and Asphalting including milling whole surface of selected Arterial, Sub Arterial and other importantroad in Byatarayanapura Assembly constituency (Package no.YNK-3) of RI-YelahankaDivison**
1	Improvements to drain and asphalting to Major sandeep Unnikrishnan Double Road from Gangamma Circle to M S palya circle.
2	Improvements to drain and asphalting to Jakkur - Sampigehalli Road from Kempegowda Circle to Thanisandra main Road via Jakkur Village sampigehalli & Chokkanahalli circle.
3	Improvements to drain and asphalting to Agrahara Layout road from Kogilu-Sampigehalli road to Thanisandra Main road at Indian Oil petrol Bunk.
4	Improvements to drain and asphalting to Palanahalli-Kattigenahalli main road from Palanahalli Village to Bagalur Main road @ ALL Mart via Kattigenahalli village
5	Improvements to drain and asphalting to Singapura Road from M S Palya circle to Singapura Busstand @ BBMP Ward no 11 office including Link road from Singapura Bussop to Abbigere road at Abbigere Lake.
6	Improvements to drain and asphalting to Devi nagara main road from Vyasa school @ railway gate to ORR via RMV clusters Apartment including Jalageramma Temple road.
7	Improvements to drain and asphalting toKogilu Kattigenahalli main road from Kogilu Village @ GO Gas station to palanahalli Kattigenahalli main road via Kogilu Lake

Estimate Cost:1620.00Lakhs

Bill of Quantities

Item No.	Description of Item	Unit	BOQ
	Part-A Civil Works		
1	Removing and refixing of Drain cover Slabs (B.S slab and RCC Slab) and poiting in CM (1:3) as directed by the Engineer incharge of the work.(Excluding GST and Area Loading Charges)	Sqm	12738.95
2	Removing and resetting of precast kerb stones fixed with CM 1:3 fixed and finished in line as per direction of Engineer incharge. (The cost of PCC shall be paid extra)(V-3.No 10.17,Page No-95 of PWD SR 2023-24)	m	11454.60
3	Earth work excavation by manual means for drains,canals and similar works in all kinds of soils , as per drawing and technical specifications, including setting out, shoring, strutting, barricading, caution lights, removal of stumps and other deleterious matter, excavated surface leveled and sides neatly dressed disposing off the excavated stuff or sorting & stacking the selected stuff for reuse in a radius of 50 m and lift upto 1.5 m including cost of labour, tools & other appurtenaces required to complete the work In all kinds of soils Depth upto 1.5 m...(V-I.No 1.4.1,Page No-6 of PWD SR 2023-24)	Cum	8459.33
4	Dismantling of existing structures like culverts, bridges, retaining walls and other structure comprising of masonry, cement concrete, wood work, steel work, including T&P and scaffolding wherevernecessary, sorting the dismantled material, disposal of unserviceable material and stacking the serviceable material with all lifts and lead Cement Concrete Grade M-15 & M-20(V-3.No 2.7 b,Page No-10 of PWD SR 2023-24)	cum	179.28
5	Earth work excavation for Foundation by mechanical means for all works & depth upto 3 m, as per drawing and technical specifications, including setting out, shoring, strutting, barricading, caution lights, including dressing of excavated surfaces, disposing off or levelling the excavated earth or sorting & stacking the selected earth for reuse in a radius of 50 m and lift upto 1.5 m including cost of labour, tools, usage of machinery & other appurtenaces required to complete the work aggregates. In all kinds of soils Depth upto 3 m. (V-I, P.No-8, I No-1.14 of PWD SR 23-24)	Cum	2878.55
6	Providing and laying in position Cement Concrete for levelling course for all works in foundation. The granite/trap/basalt crushed graded coarse aggregates and fine aggregates as per relevant IS Codes machine mixed, laid in layers not exceeding 150 mm thickness, well compacted using plate vibrators,including all lead & lifts, cost of all materials of quality, labour, Usage charges of machinery, curing, and all the other appurtenances required to complete the work as per technical specifications. Mix 1:3:6 Using 40 mm nominal size graded crushed coarse aggregates(V-I, No-2.1.3, P.No-15 of PWD SR 2023-24).	Cum	242.73
7	Providing and laying in position Cement Concrete for all Sub structures of building, Irrigation works, Substructure works of bridges, Drain works & other parallelworks from 0.50m to 3.50 m height. The granite/trap/basalt crushed graded coarse aggregates and fine aggregates as per relevant IS Codes machine mixed with super plasticisers, laid in layers, well compacted using needle vibrators, providing weep holes wherever necessary, including all lead & lifts, cost of all materials of quality, confirming to the requirements of relevant IS codes, labour, Usage charges of machinery, curing and all other appurtenances required to complete the Work as per technical specifications M20 Design Mix Using 20 mm and down size graded crushed coarse aggregates (V-1,P.No.16, I.No.2.4.2of PW, P&IWTD S.R 2023-24)	Cum	659.07

8	Supplying, fitting and placing TMT FE 550/550D Steel Reinforcement complete as per drawing and technical specification. (V-I,P.No.18, I.No.2.11(h) of PW, P&IWTD S.R 2023-24)	Tonne	40.22
9	Providing Size Stone masonry with hard stone in foundation & plinth with Cement mortar 1:6 (1 cement : 6 coarse sand) (V-II, I.No-5.4, P.No-9 of PWD SR 2023-24).	Cum	90.00
10	Providing Flush/ Ruled pointing: Pointing on stone work with cement mortar 1:3 (1 cement : 3 fine sand) after raking joints to depth nicely lining, including cost of materials, labour, curing as per specifications and as per directions of Engineer-in-charge. (V-II, I.No-8.19.1, P.No-44 of PWD SR 2023-24).	Sq-m	200.00
11	Providing and laying in position Cement Concrete for levelling course for all works in foundation. The granite/trap/basalt crushed graded coarse aggregates and fine aggregates as per relevant IS Codes machine mixed, laid in layers not exceeding 150 mm thickness, well compacted using plate vibrators, including all lead & lifts, cost of all materials of quality, labour, Usage charges of machinery, curing, and all the other appurtenances required to complete the work as per technical specifications. Mix 1:3:6 (M10) Using 20 mm nominal size graded crushed coarse aggregates (V-I, No-2.1.4, P.No-15 of PWD SR 2023-24).	Cum	376.10
12	Providing and laying 100mm thick pre-cast cover slabs over Road side drains / utility ducts / Rain water harvesting pit of width not exceeding 1000 mm using M20 concrete reinforced with TMT bars Fe 550 @ 6kg/m2, slabs jointed in CM 1:3 proportion and nicely finished Including providing holes in the Cover slabs wherever necessary for easy drainage of surface water including of labour, materials, scaffolding, usage of machinery, curing, lead and lift charges etc, Complete. .. (V-2,P.No.177, I.No.17.14of PW, P&IWTD S.R 2023-24)	Sqm	5153.36
13	Providing and fixing RCC Precast cover slab of 250mm thick for drain in cement concrete M20 using graded granite jelly 20mm and down size with steel reinforcement, including form work, lift charges, curing and concrete finished surfaces on both sides etc, complete and as per drawing and the directions of Engineer in-charge. (Data Rate)	Sqm	238.50
14	Supplying and fixing M15 grade precast cement concrete Kerb stones for Roadway, Sidewalls and gutters fixed with CM 1:3 fixed and finsihed in line as per direction of Engineer in charge. (The cost of PCC shall be paid extra) 600 x 300 x 150 mm Kerb Stone. (PW,P& IWTD SR 2023-24 Vol-3, Pg No 74 Item No.8.42.3)	m	7394.40
15	Removing & Resetting existing Heavy Duty Cobble/Interlocking stones/Pavers of thickness 60/75/80/ 100mm using Cement and 40mm thick sand bed (average thickness) and compacting with plate vibrator to achieve final desired compaction & setting of paver to its final level , including cost of materials, labour and usage charges of machinery complete as per specifications. (The cost of new paver/stones required shall be added separately) (V-III No-10.16, P No-95 of PWD SR 2023-24)	Sqm	620.10
16	Providing and laying 60mm thick factory made precast M -30 grade Cement Concrete Paver Block as per IRC SP 63:2018 & IS 15658 for Cycle Tracks & Pedestrian Footpaths of approved shape and colour, laid in required pattern and including over30mm thick compacted bed of coarse sand, filling the joints withfine sand etc. all complete as per the direction of Engineer-incharge. (WMM/WBM Base to be paid separately if necessary asper relevant technical specification). (V-III No-6.8.1, P No-51 of PWD SR 2023-24)	Sqm	206.70
17	Providing and laying 100mm thick factory made precast M -40 grade Cement Concrete Paver Block as per IRC SP 63:2018 & IS 15658 for Commercial Traffic Axle load repetitions more than 10MSA upto 20MSA for Industrial Streets, Bus & Truck parking of approved shape and colour, laid in required pattern and including over 40mm thick compacted bed of coarse sand, filling the joints with fine sand etc. all complete as per the direction of Engineer-in-charge. (WMM/WBM Base to be paid separately as per relevant technical specification). (PWD SR 2023-24, Item No. 6.8.3 Page No.52, Vol-III)	Sqm	300.00
18	Painting two coats after filling the surface with synthetic enamel paint in all shades on new plastered concrete surfaces (V-III No-8.10,P No-66 of PWD BCSR 2023-24)	Sqm	5837.10
19	Supplying and Installation of COMPOSITE FIBER REINFORCED POLYMER Water Gully Grating with bottom chamber of appropriate size of 450 x 450 mm and a load bearing capacity of 40MT (D400 Load Capacity) of approved bond confirming to BSEN-124:1994/IS 1726.Gully Grating should have minimum 30% of water entrance area that of clear opening of chamber.It shall give to abrasion resistant layer of decorative dark grey finish. The cover should have a beam design at the bottom with thickness in the center of a minimum of 125mm to 150mm at the center.The chamber should have one circular cut of 200mm dia.It shall alsoconfirm "Permanent set" criterian as per SEN-124:1994/IS 1726.The rate is inclusive of Earth Work of 750mmx750mmx600mm pit, which should be placed over 100mm thick bed concrete,reinforced with TMT Bars Fe 550 of not less than 15Kg and concreting using M20 Grade concrete of 150mm Thick till the depth of chamber. Product should be tested in the test lab for load capacity	per set	110.00
	Part-B Road Works		

20	Earth work in surface excavation by mechanical means for lowering & leveling the ground for all works other than foundation in all kinds of soils & upto depth not exceeding 300mm as per drawing and technical specifications, including setting out, shoring, strutting, barricading, caution lights, removal of stumps and other deleterious matter including dressing of excavated surfaces, disposing off or levelling the excavated earth or sorting & stacking the selected earth for reuse in a radius of 50 m and lift upto 1.5 m including cost of labour, tools, usage of machinery & other appurtenances required to complete the work. In all kinds of soils upto 300 mm depth .V-I, P.No-8, I No-1.12 PWD SR 2023-24)	Cum	4299.97
21	Construction of Granular Sub-Base of required grading as per design spreading in uniform layers with motor grader on prepared surface mixing by mix in place method with front end loader at OMC and compacting with vibratory roller to achievethe desired density, complete as per clause 401 B.Place Mix Method (v) For Grading -V Material (V-III No-4.2 V ,P No-23 of PWD BCSR 2023-24)	Cum	1267.95
22	Providing, laying, spreading and compacting graded stone aggregate to wet mix macadam specification including premixing the Material with water at OMC in mechanical mix plant carriage of mixed Material by tipper to site, laying in uniform layers with paver/grader in sub-base / base course on well prepared surfaceand compacting with vibratory roller to achieve the desired density(V-III No-4.17 A,P No-26 of PWD BCSR 2023-24)	Cum	2926.45
23	Providing and applying primer coat with SS1 grade Bitumen Emulsion on prepared surface of granular base including cleaning of road surface and spraying primer at the rate of 0.70 kg/m2using mechanical means. (V-III No-5.1 A,P No-31 of PWD BCSR 2023-24)	Sqm	12553.41
24	Milling of existing Bituminous surface to a specified depth up to 40mm using Milling machine including disposal of removedmaterial (V-III No-6.7 ,P No-51 of PWD BCSR 2023-24)	Sqm	65641.85
25	Providing and applying tack coat with RS1 Bituminous Emulsion using emulsion pressure distributor at the rate of 0.20 kg/m2 onthe prepared bituminous surface cleaned with mechanical broom. (V-III No-5.3,P No-31 of PWD BCSR 2023-24)	Sqm	163499.22
26	Providing and laying Dense Graded Bituminous Macadam with 40/60 TPH capacity HMP using crushed aggregates of specifiedgrading, premixed with bituminous binder VG-30, @ 4.5 per cent by weight of total mix and filler, transporting the hot mix to work site, laying with mechanical paver finisher to the required grade, level and alignment, rolling with smooth wheeled, vibratory and tandem rollers to achieve the desired compaction as per MoRTHspecification clause No. 505 complete in all respects. (V-III No-5.12 C,P No-35 of PWD BCSR 2023-24)	Cum	1404.61
27	Providing and laying Bituminous Concrete with not less than 40/60 TPH capacity HMP using crushed aggregates of specified grading, premixed with bituminous binder VG-30 @ 4.78% Bitumen and waste plastic 8% of Bitumen of mix and filler, transporting the hot mix to work site, laying with mechanicalpaver finisher to the required grade, level and alignment, rolling with smooth wheeled, vibratory and tandem rollers to achievethe desired compaction as per MORTH specification clause No.507 complete in all respects (V-III No-5.29 B,P No-42 of PWD BCSR 2023-24)	Cum	3608.04
28	Providing and laying Micro Surfacing Course Type II for traffic<1500CVPD with 6mm thickness as per IRC SP 81:2008 on existing structural sound & distressed pavement surface. (It is to be applied over an existing pavement surface which is structurally sound, but the surface is showing signs of premature ageing, aggregate loss, high degree of polishing, oxidation / hungry surface) comprising of aggregates confirming to section 514 of MoRTHSpecification. The Modified Bitumen Emulsion @ 10%, Filler cement @ 2%, Additive @ 0.5% and water as per requirement, aggregates as per Table 500-27. All these ingredients are mixed with required quantity of water to prepare semi fluid mass. The mix shall be spread mechanically using Microsurfacing Paver. The Cost includes cleaning of surface with Air compresser, laying and compacting to provide even riding surface and shall be rolling by Pneumatic Tyre Roller and ensure excessive movement does not occur, including cost of all materials, labour, usage charges of machinery, lead, lifts, loading, unloading, stacking, transporting, etc complete as per technical specification	Sqm	42966.00
29	Providing and laying of hot applied thermoplastic compound 2.5 mm thick including reflectorising glass beads @ 250 g/m2 area, thickness of 2.5 mm is exclusive of surface applied glass beads as per IRC:35:2015.The finished surface to be level, uniform and free from streaks and holes. (V-III No-8.15,P No-67 of PWD BCSR 2023-24)	Sqm	5514.93

30	Supplying and Fixing of Molded Shank Raised Pavement Markers / Cat's Eye made of polycarbonate and ABS moulded body and reflective panels with micro prismatic lens capable of providing total internal reflection of the light entering the lens face and shall support a load of 16000 kg tested in accordance to ASTM D 4280 Type H and complying to Specifications of Category A of MORTH Circular No RW/NH/33023/10-97 DO III Dt 11.06. 1997. The height, width and length shall not exceed 50 mm, 100 mm and 102 +/- 2 mm and with minimum reflective area of 13 cm2 on each side and the slope to the base shall be 35 +/- 5 degree. The strength of detachment of the integrated cylindrical shanks, (of diameter not less than 19 +/- 2 mm and height not less than 30+/- 2 mm) from the body is to be a minimum value of 500 Kg. Fixing will be by drilling holes on the road for the shanks to go inside, without nails and using epoxy resin based adhesive as per manufacturer's recommendation and complete as directed by the engineer.The contractor shall submit a two year warranty for satisfactory field performance including stipulated retro-reflectance of the reflecting panel, to the Engineer. (V-III I No-8.43 ,P No-74 of PWD BCSR 2023-24)	Nos	4890.00
31	Providing and fixing of retro- reflectorised cautionary, mandatory and informatory sign as per IRC:67:2022 made of Class B Type IV retro reflective sheeting fixed over 2 mm thick aluminium sheeting vide clause 803.1, 3mm/4mm thick Aluminium composite material sheet depending on the size of the sign fixed over the back support frame of min 25 x 25 x 3mm angle mounted on a mild steel circular pipe 65 NB, 3.2 mm thickness firmly fixed to the ground by means of properly designed foundation with M25 grade cement concrete 45 cm x 45 cm x 60 cm, 60 cm below ground level as per approved drawing.The sign shall be maintained as per section 12 of IRC:67:2022 60 cm equilateral triangle (V-III I No-8.5 iv ,P No-64 of PWD BCSR 2023-24)	Nos	9.00
32	Loading and Unloading of Stone Boulder/Stone aggregates/ Sand/Kankar/Moorum. (Tipper 18 m3) (V-III Page No.5, Item No.1.1D of PWD SR 2023-24)	Cum	8877.33
33	Cost of Haulage Excluding Loading and Unloading Taking output 18 t load and lead 10 km = 180 t.km (V-III Page No.5, Item No.1.4(i)B of PWD SR 2023-24) 8*10*1.28	t.km	15637.85